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by A. Frenzel under the name of *tritochorite*, appears to be undoubted descloizite. The very small crystals, grouped somewhat like the common crystallizations of calamine or prehnite, had a columnar fibrous structure, distinct columnar cleavage, dark-brown color and resinous luster, with hardness 3.5, and specific gravity 6.200.

Before the blowpipe it gave reactions for vanadium, arsenic, lead, copper and zinc, and in the closed tube it fused readily, boiled up violently and gave off water.

A careful analysis gave

V_2O_5	As_2O_5	P_2O_5	PbO	CuO	ZnO	H_2O
18.95	3.82	0.18	54.93	6.74	12.24	2.70

It differs from descloizite in having part of the vanadic acid replaced by arsenic acid. The analyses, as well as all the physical properties of the mineral, show such a close resemblance to tritochorite that it is very possible that they are identical, and should both be considered as arsenical varieties of descloizite.

GOLD IN NORTH CAROLINA.—At a recent meeting of the Academy of Natural Sciences Professor H. Carvill Lewis exhibited some remarkable gold nuggets found in Montgomery county, N. C., forty miles east of Charlotte and two miles from Yadkin river. Some of the nuggets were of great size. One of them weighed over four pounds, and contained nearly $1000 worth of gold. It was finer than any specimen in the collection at the U. S. Mint, and was probably one of the largest nuggets ever found in Eastern America. Many of the specimens exhibited were of nearly pure gold of a crystalline structure, and of a fine golden yellow color. It was stated that in the district of North Carolina, whence these nuggets were taken, gold is very abundant. The larger nuggets were found in the gulleys, where they had been washed out of the decomposed rock, and it had been stated that a shovelful of dirt dug out of the hillsides anywhere in the district would pan out traces of gold. Some years ago one man took out of a hole sixteen feet square $30,000 worth of the precious metal. The quartzite containing the gold occurs in a white clay or decomposed schist.

BOTANY.[1]

AN INTERESTING BOTANIC RELIC OF THE DISTRICT OF COLUMBIA.[2]—At a meeting of the Biological Society of Washington, held October 19th, Mr. Lester F. Ward exhibited the original manuscript proceedings of the Washington Botanical Society, which had accidentally fallen into his hands. This society was formed in the year 1817 and continued in existence until 1826. It numbered among its founders and most active members Rev. Dr. James Laurie, Dr. Alex. McWilliams and Dr. John A. Brereton, while Dr. Bigelow, of Boston, and Doctors Darlington and Barton, of Pennsylvania, were honorary members. Four years after the dissolution of this society Dr. Brereton published his "Floræ Columbianæ Prodomus," in the preface of which he briefly alludes to it. This work is still extant, and an analysis of its contents may be found in Mr. Ward's recently published "Flora of Washington."[1]

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[1] Edited by PROF. C. E. BESSEY, Ames, Iowa.

[2] Communicated by Mr. Lester F. Ward.

This allusion of Dr. Brereton was about all that was known of the history of the botanical society prior to the discovery of the above-mentioned document, which, containing as it does the names of all its members, its constitution and by-laws, and a careful record of all its work in the study of a then unknown and still remarkable flora, possesses great interest for local botanists. Mr. Ward promised that it should be ultimately so disposed of as to render it safe from the vicissitudes of either private individuals or ephemeral societies.

HYBRIDISM IN SPIROGYRA.—An interesting case of hybridism between individuals of two distinct species of Spirogyra came under my observation at Ames, Ia., in August, 1883. The plants of this genus are the familiar pond scums which occur everywhere in ponds and ditches as green stringy growths floating or attached to sticks and stones. Each plant is a long cylinder of cells, and in the latter there may be seen, under a moderate power of the microscope, the beautiful spiral arrangement of the chlorophyll bodies. Sexual reproduction takes place by the union of the protoplasm of two cells. Two plants happening to lie side by side, bud out small short branches which, growing towards each other, finally touch at their tips and then fuse into tubes. Through these tubes the protoplasm from one cell runs into and unites with that in the other. As a result of this union of protoplasm a resting spore (technically a zygospore) is formed. This process may be observed by any one almost any time during the summer, by the aid of a microscope, and there are few things which are more instructive to the beginner in vegetable physiology, who would gain some insight into the real nature of sexual reproduction.

In the case of hybridism under consideration, the two species involved were *Spirogyra majuscula* and *S. protecta*. These species differ from one another so much that there can be no question as to their distinctness. In *S. majuscula* (A and A′ in the figure) there are many very slightly coiled spirals of chlorophyll, the nucleus of the cell is very evident, and the partitions between the cells are plane; in *S. protecta* (B and B′ in the figure) on the contrary, there is but one closely coiled spiral of chlorophyll, the nucleus is to be seen with difficulty, if at all, and the partitions have a curious double-infolded appearance.

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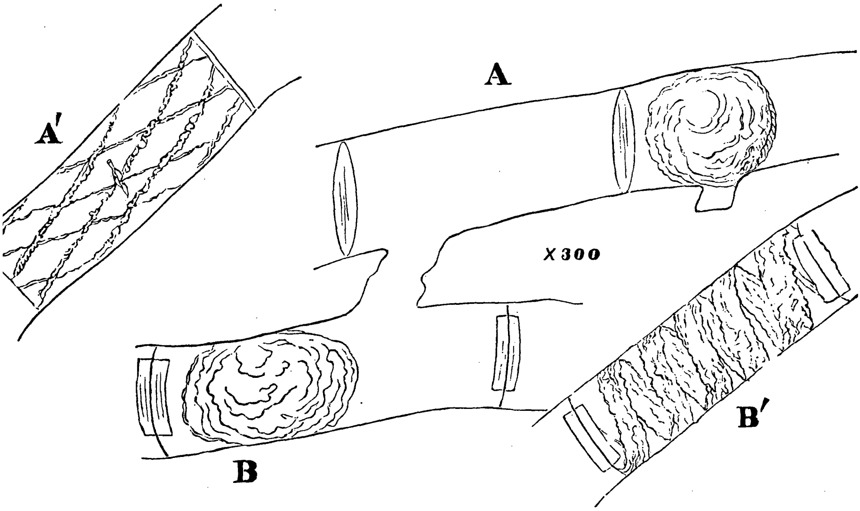
[1] Guide to the Flora of Washington and its Vicinity. Bulletin No. 22, U. S. National Museum. Washington, Government Printing Office, 1881.

Two individuals, one bearing all the characters of *S. majuscula*, and the other all those of *S. protecta*, were observed in conjugation, as in the figure. The two species were almost equally abundant in the pool from which the specimen was obtained. As can be seen in the figure an apparently perfect resting spore was formed as a result of the hybridization. It is interesting to note that the form of the resting spore resembles that of *S. protecta* much more than it does that of *S. majuscula*. The pure-bred resting spores of *S. protecta* in the same pool were much elongated or ellipsoidal, while those of *S. majuscula* were globular. In this instance B was functionally the female and A the male, so that here *form* followed the female.—*C. E. Bessey*.



A, *Spirogyra majuscula*, and B, *S. protecta* in conjugation; A', a single cell of *S. majuscula* showing structure; B', a single cell of *S. protecta* showing structure. (From camera sketches.)

LARGE FUNGI.—Last summer while searching for small fungi, I found a fungus of unusual dimensions. It was on the trunk of an old tree which was decayed in places. The tree grew where the ground was wet, though not swampy; it was a tall old tree, and the fungus was so high that I could not secure it; but a gentleman found means to reach it and cut it from the tree. It proved to be *Hydnum septentrionale*, measuring about thirteen inches across, and weighing twelve pounds. The fungus was composed of layers, one above the other, alternately in light and dark brown shades of soft tints, growing darker at the base.

Where the fungus touched the tree, each layer seemed to spring directly from the wood of the tree; while each was connected with the one below it by processes resembling teeth or strings. The whole mass was compact and solid, yet there was a juiciness about the surface which made it necessary to handle it carefully lest the delicate surface become scratched. I have seen many similar specimens but rarely one so large and perfect. I noticed a statement in the NATURALIST that, as a rule, the large fungi of this species are not far from the ground. But I think that in Maine, at least, they grow high on the trees. I have many times seen them too high to reach, and I incline to the belief that a greater altitude is the rule and not the exception.

On the same tree where I found this large fungus there were several small ones lower on the trunk.—*C. W. L. Rich, Auburn, Maine.*

NEW FLORIDA FUNGI. II.—*Asterina intricata* E. & M.—Perithecia (½–¾$^{\rm mm}$ diam.) suborbicular, flat, black, of a reticulated structure, the free ends of the reticulation forming a short, subhyaline, marginal fringe; asci abundant, obovate, sessile, 15 x 10μ.; sporidia narrow, clavate-oblong, hyaline, with a faint gelatinous border, about 9 x 3μ., endochrome once divided. Remarkable for its large flat perithecia scattered over the lower surface of the leaf without any very distinct mycelium. On living leaves of *Quercus arenaria.*

Venturia cupulata E. & M.—Perithecia hypophyllous, scattered, astomous, 300μ. diam., hairy around the base, bald and collapsed above; hairs setaceous brown black, apices entire, 210 × 6μ.; asci oblong, 48 × 12μ., eight-spored; sporidia obovate, hyaline, biseriate, uniseptate, 12–13 x 4–4½μ. On living leaves of *Quercus laurifolia.*

Venturia applanata E. & M.—Perithecia hypophyllous, lentiform (100μ.), perforated in the center, of subradiate cellulose structure, with a few (12–15) erect, brown, sparingly septate hairs, 70–100μ. long; asci oblong, 40 x 10–12μ.; sporidia in 2–3 series, ovate-oblong, 1-septate, yellowish, 10–12 x 3μ. On living leaves of *Magnolia glauca.*

Venturia saccardioides E. & M.—Perithecia hypophyllous, scattered, brownish-black, collapsing above (150–200μ.), clothed with bristle-like hairs 100–140μ. long; asci obovate, 4–6 spored; sporidia obovate, triseptate, constricted at the middle septum, hyaline, 15–16 x 3–3½μ. Probably the perfectly developed asci will be found to be 8-spored. On living leaves of *Magnolia glauca.*

Linospora ferruginea E. & M.—Spots light yellowish-brown, border darker, narrow and slightly raised, 1½–2$^{\rm mm}$ diam.; perithecia black, subglobose (150μ.), immersed and covered above by the blackened cuticle, perforated above but ostiolum scarcely prominent; asci cylindrical, 75–80 x 7μ, sessile or nearly so;

paraphyses abundant linear; sporidia 8, vermiform, yellowish, faintly nucleate, acute at each end, 35–45 × 1½μ. The perithecia are solitary, one in the center of each spot, but the spots are often sterile. On leaves of *Andromeda ferruginea.*

Phyllosticta terminalis E. & M.—Occupying mostly the dead, whitened tips of the leaves or occasionally the lateral margin, and bounded by a narrow purplish-black line. Perithecia globose, buried in the parenchyma of the leaf, the epidermis being slightly raised and blackened over them; spores oblong, 3–4 × about 1μ., on stout cylindrical basidia much longer than the spores themselves. On leaves of *Ilex dahoon.*

Septoria serpentaria E. & M.—Spots chestnut-brown, becoming darker, eroded, border obsolete, 1^{mm} diam.; perithecia black, subglobose, innate-epiphyllous, 156 × 140μ.; spores subhyaline, cylindrical curved, 82–108 × 4μ. On leaves of *Quercus laurifolia.*

Pestalozzia myricæ E. & M.—Spots irregular, chestnut-brown ($5–10^{mm}$), acervuli innate-erumpent, epiphyllous, 75μ. diam; spores oval, dark brown, biseptate, ends hyaline, 9–12μ. long, crest 2-parted; pedicels 12 × 2μ., contracted below. On living leaves of *Myrica cerifera.*

Helminthosporium fumosum E. & M.—Hypophyllous in loose, olivaceous tufts which form a circular group $½–1^{cm}$ diam, standing on a prostrate pale brick-colored, branching mycelium, which forms a radiate-fimbriate margin around the whole; the erect hyphæ are pale brown, simple, septate, 75–80 × 6μ., and bear at their tips a single obovate, brown, 3-septate spore, 25–30 × 10–12μ. On living leaves of *Persea palustris.—J. B. Ellis, Newfield, N. J., and Dr. Geo. Martin.*

GRAY'S CONTRIBUTIONS TO NORTH AMERICAN BOTANY.—From Vol. XIX of the Proc. Am. Acad. of Arts and Sciences, we have received a thick pamphlet of nearly one hundred pages of Contributions to N. A. Botany, by Dr. Asa Gray. The greater part is taken up with characters of new Compositæ, with revisions of certain genera, and critical notes, while the remaining portion includes miscellaneous genera and species. It is impossible to over estimate the value these occasional contributions possess for the careful student of systematic botany. The critical notes upon species are especially instructive, and might well be studied with care by our younger botanists who are entering upon work in the field of systematic botany.

Among the interesting plants described is a white-rayed Silphium (*S. albiflorum*) from Texas, closely related to the ordinary compass plant. In the thistles (now of the genus Cnicus, formerly Cirsium) the species *C. discolor* is hereafter to be the variety *discolor* under *C. altissimus.*

"Of genuine Lactuca, or the Scariola section, we appear to have five indigenous species, namely, *L. canadensis* L., the oldest name of the *L. elongata* Muhl., &c.; *L. integrifolia* Bigelow (a better and perhaps as old a name as *L. sagittifolia* Ell., which is not quite certain); *L. hirsuta* Muhl. and Nutt. (as old and quite as good a name as *L. sanguinea* Bigelow); *L. graminifolia*, a southern species of wide extension westward; *L. ludoviciana* DC., a species which ranges from Dakota to Texas, and is marked by its larger heads and more imbricated and large-bracted involucre."

A new species of honeysuckle (*Lonicera sullivantii*) is described. It occurs from Central Ohio to Illinois, Wisconsin and Winnipeg, and also in Tennessee, etc. It has hitherto been considered a form or variety of *L. flava*, from which it is now for the first time separated. If we understand it aright, *L. sullivantii* is the northern species, while *L. flava* is strictly a southern species. In this connection it may also be stated that hereafter the small honeysuckle (*Lonicera parviflora* of the manuals) is to be known as *L. glauca* Hill, and that the var. *douglasii* is to be erased.

A SUGGESTION IN REGARD TO THE PUBLICATION OF NEW SPECIES.—Some months ago one of the foremost of our American botanists suggested the propriety of demanding in case of publication of descriptions of new species in scientific journals, that specimens should in every case accompany the descriptions. The suggestion is well worth considering in these days when nearly every discoverer is inclined to make free use of his right to describe what he has found. There can be little doubt that it is wise to permit and encourage such work on the part of our best collectors. The stimulation it gives to the whole work in the field of systematic botany is no small part of the good which results. But a serious inconvenience often arises as a consequence of such a mode of publication. It is, in the first place, difficult to find the descriptions on account of the well-known inaccuracy of most of the journal indexes, and in the second place it too often happens that the specimens upon which the descriptions were based, soon become inaccessible. These difficulties might be more or less completely remedied by our scientific journals adopting any of the following plans:

1. Every description to be accompanied by the statement that type specimens were deposited in this or that established herbarium.
2. Every description to be accompanied by specimens to be distributed by the editor of the journal giving such publication.
3. No description to be given until specimens are deposited in the National Herbarium.

The last is essentially the recommendation made in the November number of the London *Journal of Botany*. It would simplify matters very much if in every case the deposited specimens were soon accompanied by the printed descriptions. We shall return to this matter again ere long, and in the meantime shall be glad to receive further suggestions.—*C. E. Bessey.*

REMARKABLE FUNGUS GROWTH.—I have lately received from Messrs. B. M. Everhart and W. T. Haines, of West Chester, Pa., a very curious growth, an account of which may be of interest. This strange production is no doubt an abortive growth of the mycelium of some fungus unable to assume its normal form and character for want of light and air.

In the letter of Messrs. Everhart and Haines, accompanying the specimen, they say: "About two years ago a gentleman of this place, Dr. Warren, preparing to build a stable on his place, visited Philadelphia and purchased some of the material taken from the buildings then being torn down to make room for the new depot of the Penna. R. R., at Fifteenth and Filbert streets. This material consisted of pine flooring and hemlock joists, and was used by Dr. Warren for laying a floor in the stable he was building. Under this floor was a cellar about four feet deep without window or opening of any sort, and consequently entirely dark. Some time afterwards, for the purpose of ventilation, a hole or trap door was cut through this floor, when it was discovered that the under side of the floor was coated and festooned with the curious fungoid growth before mentioned. Here and there were hollow, bladder-like bodies six inches in diameter and perhaps twice as long, suspended by a stringy mycelium, while in other places a sponge-like mass of mycelium a foot in diameter would be suspended like the bladder-shaped bodies by a cord or string of mycelium as thick as one's finger, the lower part of the suspended mass reaching nearly or quite to the bottom of the cellar and hanging in loose shreds like pieces of white cloth that had been through a threshing machine. The texture of the whole was very light and delicate, so that the cotton-like fibers of the outside of the suspended bodies would move with the least breath of air. The whole was very moist, with drops of water standing on it, and seemed to be enveloped in a mist. Portions of this curious growth taken out and hung in a dry room near a hot stove had, in two days, shriveled to less than half their original size, and were of a yellowish-white color, had a rather agreeable sweetish smell and adhered slightly to the fingers. On shaking the dried mass fragments like snow flakes separated and fell to the floor."

The specimens sent me some days ago have not changed in appearance since I received them. One of them consists of a spongy, white, torn and ragged bundle like a much-worn dish cloth or bundle of white rags, more compact above, where it is gradually contracted into the suspending cord, which is about as thick as one's finger, tapering above to the size of a pipe stem and of about the same consistency and appearance as a piece of deer skin.

My friends, Messrs. Everhart and Haines, incline to the opinion that this is the *Byssus septicus* of Withering, and quote descriptions of that production which is said to " grow most luxuriantly in bins or on wooden shelves in cellars where wine has been spilt, hanging down in the form of a jelly bag or of a cylinder with a globe at the end, to the length of a foot or more. It is easily crushed, and then seems principally to consist of water adhering to the fingers." It is quite probable that this may be the genuine *Byssus septicus*, but it is evidently only the mycelium of some fungus, being entirely without fruit of any kind, and of the same nature as the curious fungoid growths in old abandoned mines and subterranean galleries. To what species this mycelium pertains it is of course impossible to say, though it is not improbably the mycelium of *Polyporus destructor* Fr., which in confined and damp places is known to luxuriate in various abnormal growths.—*J. B. Ellis, Newfield, N. J.*

ERRATUM.—By an annoying typographical error on page 1280 of the December NATURALIST, ninth line from the bottom, the word *Entomophthora* was misspelled.

BOTANICAL NOTES.—Dr. Farlow, in the November *Botanical Gazette*, concludes his interesting and valuable " Enumeration of the Peronosporeæ of the United States." It is in reality much more than an enumeration, for every species (thirty-six in all) is described, and for each the synonymy is given, as well as reference to the exsiccati and literature. The species are distributed as follows: Phytophthora, 1; Peronospora, 31; Cystopus, 4.——The publishers of the *Botanical Gazette* offer a prize of fifty dollars for *the best life-history of any plant*, the result of original investigations. The papers are to be finished on or before the 1st of Nov., 1884. Further particulars may be learned by addressing the editor of the *Gazette*, Crawfordsville, Indiana.——A similar prize of from sixty to one hundred dollars for the best paper, and of fifty dollars for the second best, is also offered by the Boston Society of Natural History, as announced in the advertising pages of the NATURALIST. Surely biological botany should no longer lag.——Dr. Vasey's " Grasses of the United States," recently issued as a special report from the Department of Agriculture, Washington, D. C., is one of the most valuable papers which that department has issued. Synopses and descriptions of the tribes and genera of our native grasses are given, and under each genus all our indigenous species are catalogued. The arrangement is in accordance with that of Bentham and Hooker in their Genera Plantarum. The whole number of genera is 114, while of species there are enumerated 589.——The Catalogue of Canadian Plants, Part 1, Polypetalæ, by Professor John Macoun, which has lately appeared as one of the publications of the Geological and Natural History Survey of Canada, is a publication of much promise. It is doubtless the forerunner of a flora of Canada, which has long been needed. It includes 907 species, although extending no further than the end of the Polypetalæ.——The Catalogue of the Plants of Worcester county, Mass., by Professor Joseph Jackson, published by the Worcester Natural History Society, is creditable both to the author and the society which furnished the means for its publication. It contains 812 species and well-marked varieties, distributed among 387 genera. Why do not more local societies undertake the publication of such lists?——From the Bulletins of the U. S. Fish Commission we have a list of marsh and aquatic plants of the U. S., many of which are suitable for carp ponds, by L. F. Ward. It includes flowering plants only.

ENTOMOLOGY.[1]

THE GENUS COLIAS.—As "Contributions from the Northern Transcontinental Survey," Dr. H. A. Hagen has sent us from the Proceedings of the Boston Society of Natural History, Vol. XXII, pp. 150–178, an interesting paper containing the results of his studies on the genus Colias. We have read it over with a good deal of interest and care, and while it upsets much of the descriptive work which Mr. W. H. Edwards has done, we feel that Dr. Hagen is in almost every case justified by the facts and by the recognized variability in the genus and in Lepidoptera generally. Dr. Hagen's method has been, first, to familiarize himself with the publications on the subject both here and abroad, and then to critically study large sets of specimens wherever such were available. He reduces the number of species (exclusive of *eurydice* and *cæsonia*) to nine, as follows:

1. *Colias chrysotheme* = *keewaydin*, with seasonal forms *ariadne* and *eurytheme*.
2. *C. philodice*, with seasonal form mimicking *ariadne*, and with north-western forms *eriphyle* and *chrysomelas*.

   ("Nos. 1 and 2 are so nearly related to each other that obviously reliable differences are still a want," p. 152.)
3. *C. interior*, synonyms *edwardsii* with *emelia* and *astræa*, *alexandra*, *scudderi*, *occidentalis*, *christina*, var. *harfordii* with female *barbara*, var. *laurentina*. (*C. pelidne* Boisd., is united with *C. palæno*, unless the type should prove its identity with *C. interior*.)
4. *C. palæno* with var. *pelidne* Boisd., Staud, and *chippewa*.
5. *C. meadii*.
6. *C. behrii*.
7. *C. nastes*.
8. *C. hecla*.
9. *C. boothii*.

Nos. 5 to 9 are simply enumerated, as little or no material was

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[1] This department is edited by PROF. C. V. RILEY, Washington, D. C., to whom communications, books for notice, etc., should be sent.